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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,147	08/27/2003	Todd O. Bolken	03-0040.1	5050

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EXAMINER

NOVACEK, CHRISTY L

ART UNIT PAPER NUMBER

2822

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/649,147	<b>Applicant(s)</b> BOLKEN ET AL.	
	<b>Examiner</b> Christy L. Novacek	<b>Art Unit</b> 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 51-95 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 55-95 is/are allowed.
- 6) ☒ Claim(s) 51-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/3/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to the amendment filed May 9, 2005 and the request for continued examination filed June 3, 2005.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 9, 2005 has been entered.

#### ***Response to Amendment***

The amendment to the claim 51 is sufficient to overcome the objection to claim 51 stated in the previous office action. Therefore, this objection is withdrawn.

The limitations added to claims 55, 56 and 77-80 are sufficient to overcome the Nakayama et al. (US 6,621,172) and Horiuchi et al. (US 6,731,010) references. Therefore, the rejections of claims 56 and 77 and the objections to claims 55 and 78-80 are hereby withdrawn.

#### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 51, 52 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakayama et al. (US 6,621,172).

Regarding claim 51, Nakayama discloses providing a substrate (70) having a plurality of first and second interconnect contacts (72), attaching a first die (50) to the substrate in electrical communication with the first interconnect contacts, forming a first encapsulant (74) having a planar surface on the first die such that at least one feature (74/76) on the planar surface of the encapsulant facilitates bonding to the first encapsulant, attaching a second die (60) to the surface of the first encapsulant and to the feature such that it is in electrical communication with the second interconnect contacts, and forming a second encapsulant (90) on the second die and on the first encapsulant (Fig. 3; col. 6, ln. 36 – col. 12, ln. 14).

Regarding claim 52, Nakayama discloses that the first encapsulant includes molding and the feature includes a molded feature.

Regarding claim 54, Nakayama discloses that the feature includes a molded ridge.

Claims 51 and 53 are rejected under 35 U.S.C. 102(e) as being anticipated by Horiuchi et al. (US 6,731,010).

Regarding claim 51, Horiuchi discloses providing a substrate (23) having a plurality of first and second interconnect contacts, attaching a first die (25) to the substrate in electrical communication with the first interconnect contacts, forming a first encapsulant (37) having a planar surface on the first die such that at least one feature (52) on the planar surface of the encapsulant facilitates bonding to the first encapsulant, attaching a second die (55) to the surface of the first encapsulant and to the feature such that it is in electrical communication with the second interconnect contacts, and forming a second encapsulant (27) on the second die and on the first encapsulant (Fig. 4, 9A-9E; col. 10, ln. 30 – col. 11, ln. 67).

Regarding claim 53, Horiuchi discloses that the feature (52) is a layer of material applied to the surface (col. 10, ln. 57-63).

### ***Response to Arguments***

Applicant's arguments filed May 9, 2005 have been fully considered but they are not persuasive.

Regarding the rejection of claim 51 as being anticipated by Nakayama, Applicant argues that Nakayama allegedly fails to teach forming a first encapsulant with a planar surface and a feature to facilitate bonding to the encapsulant in Figure 2. However, Figure 3 of Nakayama does show a first encapsulant (74) having a planar surface and a feature (76) thereon that facilitates bonding to the first encapsulant. Therefore, the rejection is maintained.

Regarding the rejection of claim 51 as being anticipated by Horiuchi, Applicant argues that Horiuchi allegedly fails to teach forming a first encapsulant with a planar surface and a feature to facilitate bonding to the encapsulant. However, Horiuchi discloses all of the limitations in claim 51, including the limitation of forming a first encapsulant (37) having a planar surface on the first die and forming a feature (52) on the planar surface configured to facilitate bonding to the first encapsulant (Fig. 9D).

### ***Allowable Subject Matter***

Claims 55-95 are allowed.

The primary reasons for the allowance of these claims were stated in the office action mailed March 24, 2005.

### ***Conclusion***


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLN  
June 23, 2005

  
AMIR ZARABIAN  
PATENT EXAMINER  
TECHNOLOGY CENTER 2800